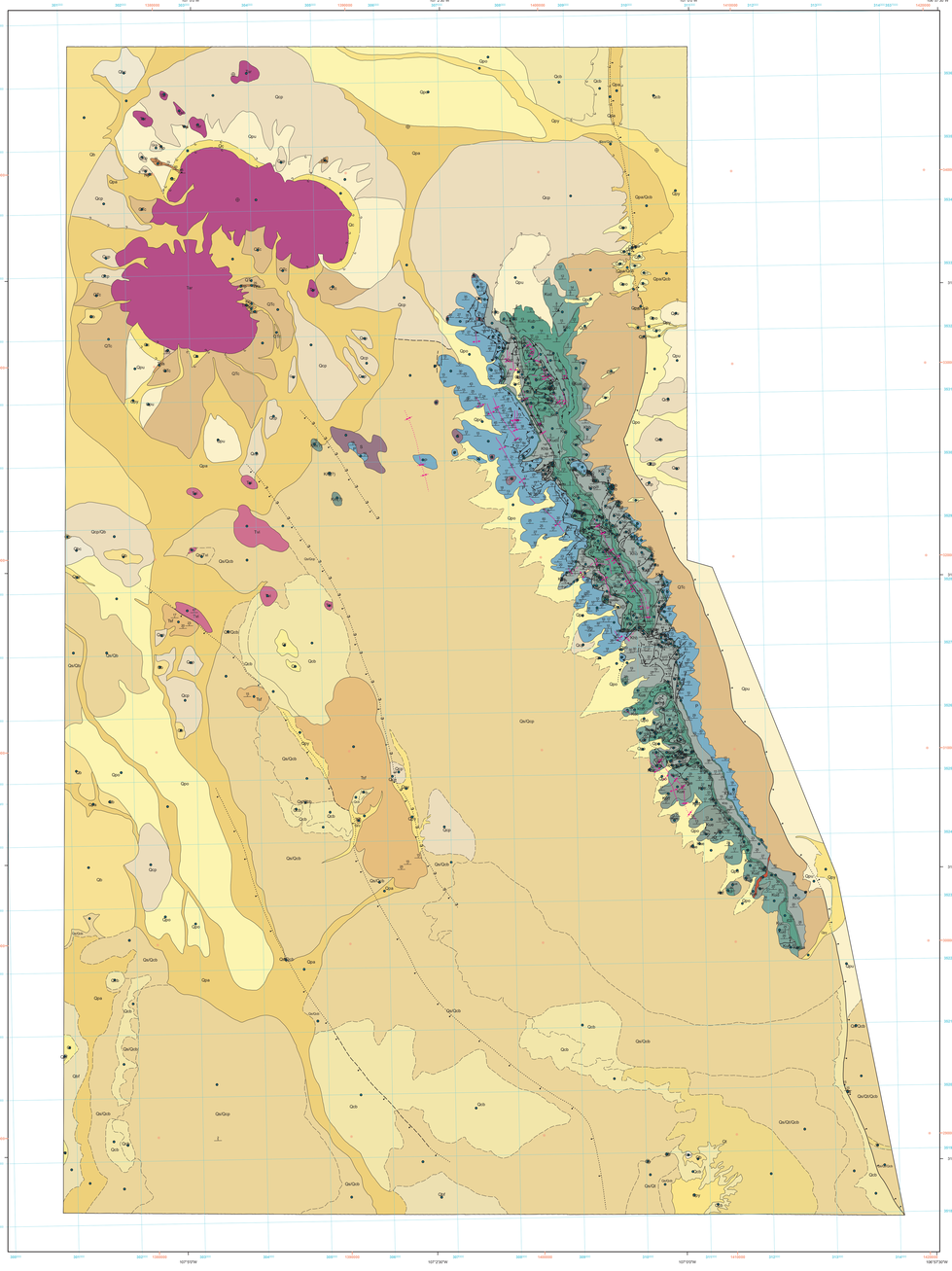
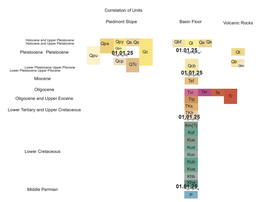




Explanation of Map Symbols

- 01.01.01 Contact—Identity and existence are certain. Location is accurate.
- 01.01.02 Contact—Identity or existence are questionable. Location is accurate.
- 01.01.03 Contact—Identity and existence are certain. Location is approximate.
- 02.01.01 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence are certain. Location is accurate.
- 02.01.03 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence are certain. Location is approximate.
- 02.02.01 Normal fault—Identity and existence are certain. Location is accurate. Ball and bar on downthrown block.
- 02.02.03 Normal fault—Identity and existence are certain. Location is approximate. Ball and bar on downthrown block.
- 02.02.04 Normal fault—Identity or existence are questionable. Location is approximate. Ball and bar on downthrown block.
- 02.02.07 Normal fault—Identity and existence are certain. Location is concealed. Ball and bar on downthrown block.
- 02.02.08 Normal fault—Identity or existence are questionable. Location is concealed. Ball and bar on downthrown block.
- 02.08.01 Thrust fault (1st option)—Identity and existence are certain. Location is accurate. Sawteeth on upper (tectonically higher) plate.
- 02.08.03 Thrust fault (1st option)—Identity and existence are certain. Location is approximate. Sawteeth on upper (tectonically higher) plate.
- 02.08.07 Thrust fault (1st option)—Identity and existence are certain. Location is concealed. Sawteeth on upper (tectonically higher) plate.
- 31.08 Map neatline
- 02.11.09 Inclined fault (2nd option)—Showing dip value and direction.
- 06.01 Horizontal bedding
- 06.02 Inclined bedding—Showing strike and dip.
- 06.03 Vertical bedding—Showing strike.
- 06.04 Overturned bedding—Showing strike and dip.
- 08.03.02 Inclined metamorphic or tectonic foliation—Showing strike and dip.
- 01.01.01 Contact—Identity and existence are certain. Location is accurate.
- 02.02.01 Normal fault—Identity and existence are certain. Location is accurate. Ball and bar on downthrown block.
- 05.01.01 Anticline (1st option)—Identity and existence are certain. Location is accurate.
- 05.01.03 Anticline (1st option)—Identity and existence are certain. Location is approximate.
- 05.01.07 Anticline (1st option)—Identity and existence are certain. Location is concealed.
- 05.03.17 Overturned anticline (1st option)—Identity and existence are certain. Location is accurate. Beds on one limb are overturned; arrows show dip direction of limbs.
- 05.05.01 Syncline (1st option)—Identity and existence are certain. Location is accurate.
- 05.05.03 Syncline (1st option)—Identity and existence are certain. Location is approximate.
- 05.05.07 Syncline (1st option)—Identity and existence are certain. Location is concealed.
- 05.07.17 Overturned syncline (1st option)—Identity and existence are certain. Location is accurate. Beds on one limb are overturned; arrows show dip direction of limbs.
- 31.10

Description of Map Units

CMUMapUnitPolys

Symbol

<Null>

01-01-00-00-00—Heading02—Holoc... & Upper Pleistocene—Holocene & Upper Pleistocene—Epoch

01-01-01-00-00—Unit—Undiff Qpo/Qpy—Undifferentiated Qpo and Qpy (Holocene-Upper Pleistocene)—Undifferentiated Qpo and Qpy

01-01-02-00-00—Unit—Younger Pied—Younger Piedmont-Slope Deposits (Holocene-Upper Pleistocene)—Unconsolidated sand, gravel, and scamy sediments of drainageways, which cross and are inset below or bury older piedmont surfaces, and of fans constructed on distal slopes at lower end of such drainageways; thickness to 5m (16.5 ft)

01-01-03-00-00—Unit—Eolian Sand—Eolian Sand (Holocene-Upper Pleistocene)—Dunes and Hummocks of tan to pale-orange quartz sand, which mantle various rock units, especially QCP, Qcb, and Qb; thickness to 3 m (10 ft)

01-02-00-00-00—Heading02—Pleist...

01-02-01-00-00—Unit—Colluvium—... (Holocene-Lower Pleistocene)—Slope gravel of Holocene to ealry Pleistocene age on the middle slopes of Mt. Riley-Mt. Cox; locally cemented with pedogenic carbonate

01-02-02-00-00—Unit—Undiff Qpo/Qcp—Undifferentiated Qpo and Qcp (Pliestocene)—Undifferentiated Qpo and Qcp

01-02-03-00-00—Unit—Old Pied—Older Piedmont-Slope Deposits (Pliestocene)—Fan and terrace depositsand eroslon-surface veneers on piedmont slopes graded to closed-basin floors; mostly weakly consolidated gra11el and sandy gravel with thin surficial and buried horizons of soil-carbonate and clay accumulation; thickness to 10m (33ft)

01-02-04-00-00—Unit—Santa Fe, Pied—Santa Fe Group, Camp Rice Formation, Piedmont-Slope Facies (Lower Pliestocene)—Weakly to moderately cemented boulder to cobble fan deposits and erosion surface veneers in proximal fan positions grading to gavelly silt and loam on distal piedmont slopes. Surlicial layers, as much as 3 m (10ft) thick, contain prominent horizons of soil carbonate accumulation that form resistant pedogenic calcrete zones 1-2 m (3-6 ft) thick: thickness generally less thari 7 m (24 ft)

01-03-00-00-00—Heading02—Lower Pleistocene—Lower Pleistocene & Upper Pliocene—Epoch

01-03-01-00-00—Unit—Santa Fe, Fang—Santa Fe Group, Camp Rice Formation, Fanglomerate Facies (Lower Pliestocene-Upper Pliecene)—Unit comprises Qcp as well as underlying, massive calcite-cemented fanglomerate; oldest beds in this unit may be late Pliocene in age. As much as 15 m (50 ft) exposed; probably considerably thicker locally

02-00-00-00-00—Heading01—Basin Floor—Basin Floor—Basin Floor

02-01-00-00-00—Heading02—Holoc... & Upper Pleistocene—Holocene & Upper Pleistocene—Epoch

02-01-01-00-00— Unit—Basin-Floor Sediments—Basin-Floor Sediments (Holocene-Upper Pleistocene)—Mostly loam, silt, or clay, locally with thin pebble zones; thickness to 5 m (16.5 ft)

02-01-02-00-00—Unit—Playa-Lake Deposits—Playa-Lake Deposits (Holocene-Upper Pleistocene)—Mostly clay and silt in small nonalkaline lakes or depressions; thickness to 5 m (16.5 ft)

02-01-03-00-00—Unit—Eolian Sand—Eolian Sand (Holocene-Upper Pleistocene)—Dunes and Hummocks of tan to pale-orange quartz sand, which mantle various rock units, especially Qcp, Qcb, and Qb; thickness to 3 m (10 ft)

02-02-00-00-00—Heading02—Lower Pleistocene—Lower Pleistocene & Upper Pliocene—Epoch

02-02-01-00-00—Unit—SF, Basin—Santa Fe Group, Camp Rice Formation, Basin-Floor Facies (Pleistocene-Upper Pliocene)—Loam, silt, clayand sand in basin-floor position. Sediments represent deposits of alluvial flats, ephemeral nonalkaline lakes, eolian activity, and possible fluvial deposition in braided channels of the ancestral Rio Grande. Constructional top of these deposits is La Mesa surface, shown on the map with diagonal lines. Surficial layers, as much as 3 m (10 ft) thck below La Mesa surface, have multiple horizons of soil-carbonate accumulation, the uppermost of which forms a prominent resistant pedogenic calcrete zone as much as 1.5 m (5 ft) thick. Holocene eolian sand (Qs) discontinuously mantles the unit; exposed thickness approximately 10 m.

02-03-00-00-00—Heading02—Mioce...

02-03-01-00-00—Unit—SF, Fan—Santa Fe Group, Older Fanglomerate (Miocene)—Brown to purplish-brown conglomerate and conglomerate sandstone drived from volcanic rocks, Cretaceous and Permian rocks of the East Portrillo Mountains, and Precambrian granite; locally silicified; moderately deformed by tilting and faulting; thickness at least a few hundred meters (800 ft)

02-04-00-00-00—Heading02—Oligo...

02-04-01-00-00—Unit—Rhyolite Dike—Rhyolite Dike of East Potrillo Mountains (Oligocene-Upper Eocene)—Cream, nonflow-banded rhyolite

02-04-02-00-00—Unit—Rubio Peak Formation—Rubio Peak Formation (Oligocene-Upper Eocene)—Purplish-gray, greenish-gray, and dark-gray porphyritic andesite to latite flows and interbedded breccia and tuffaceous epiclastic rocks; siliceous tuffaceous siltstone as well as limestone-pebble conglomerate near base unit; thickness at least a few hundred meter (656 ft)

02-05-00-00-00—Heading02—Oligo... and Upper Eocene—Oligocene and Upper Eocene—Epoch

02-05-01-00-00—Unit—Int-Comp Volc—Intermediate-Composition Volcanic and Volcaniclastic Rocks (Oligocene)—Gray, purplish to maroon-gray latite, dacite, and andesite flows, intrusives, and breccia; aphyric to slightly porphyritic; very fine grained; unit probably also includes conglomerate, mudstone, and sandstone (derived from intermediae-composition volcanic rocks) exposed on the northeast side of hill 4474, 5 km (3 mi) south-southwest of Mt. Cox; thickness at least 100 m (330 ft)

02-05-02-00-00—Unit—And Porph—Andesite Porphyry of Mt. Riley-Mt. Cox (Oligocene)—Pale greenish-gray andesite-rhyodacite; sparse phenocrysts of hornblende, biotite, and plagioclase; nearly structurless; flow banding developed locally along contacts with wall rock. Unit is probably a volcanic dome or cluster of domes.

02-05-03-00-00—Unit—And Dike—Andesite Dikes of East Portrillo Mountains (Oligocene)—Greenish-gray, sparsely porphyritic dikes approximately 1 m (3 ft) wide; only a few small outcrops noted as well as a single 0.5-km-long (0.3-mi-lonh) dike

02-06-00-00-00—Heading02—Lower Tertiary —Lower Tertiary and Upper Cretaceous—Period

02-06-01-00-00—Unit—UC-LT Sedi Rocks—Upper Cretaceous and/or Lower Tertiary Sedimentary Rocks (Lower Tertiary-Upper Cretaceous)—Gray, purplish-gray, maroon, tan, brown, and olive-brown sandstone, shale, siltstone, and pale-red mudstone derived in part from intermediate-composition volcanic rocks; minor conglomerate sandstone with limestone (Paleozoic-Cretaceous) clasts; outcrops widely scattered and pootly exposed around the margins of the Mt. Riley-Mt. Cox intrusion. Unit is probably at least a few hundred meters (700 ft) thick

02-06-02-00-00—Unit—Love Ranch Fm—Love Ranch Formation (Lower Tertiary-Upper Cretaceous)—Upper unit of gray, reddish-gray limestone-cobble and boulder fanglomerate with interbedded red shale and siltstone and tan to olive-brown sandstone; clasts are Lower Cretaceous and Permian rocks similar to those of the East Portrillo Mountains; grades downward into lower unit of red mudstone. Each unit is 100 m (330 ft) or more thick; exposed at southwest margin of Mt. Cox

02-07-00-00-00—Heading02—Lower Cretaceous—Lower Cretaceous—Period

02-07-01-00-00—Unit—Mojado Formation—Mojado Formation (Lower Cretaceous)—Gray, partly silicified (s), crossbedded orthoquartzite; approximately 15 m (50 ft) exposed

02-07-02-00-00—Unit—U-Bar Fm Siltstone—U-Bar Formation, Upper Siltstone Member (Lower Cretaceous)—Gray and tan-mottled, massive to hummocky-laminated, calcareous siltstone; conformable basal contact; upper contact covered; exposed only in southern part of East Portrillo Mountains; thickness at least 15 m (50 ft)

02-07-03-00-00—Unit—U-Bar Fm Limestone—U-Bar Formation, Massive Limestone Member (Lower Cretaceous)—Light-gray, massive, recrystallized limestone with light streaks of calcite; few relict bivalve and gastropod shells near base; conformable upper and lower contacts; exposed only in southern part of East Potrillo Mountains; thickness 133 m (435 ft)

02-07-04-00-00—Unit—U-Bar Fm Silt-Lime—U-Bar Formation, Siltstone-Limestone Member (Lower Cretaceous)—Tan and gray-mottled, massive to horizontally or hummocky-laminated, bioturbated siltstone and very fine grained sandstone; bivalve and gastropod shells; bivalve and gastropod packstones increase in abundance upward; conformable upper and lower contacts; thickness 81-90 m (268-298 ft)

02-07-05-00-00—Unit—U-Bar Fm Rud Lime—U-Bar Formation, Rudistid Limestone Member (Lower Cretaceous)—Gray, ledge-forming limestone; lower half is massive rudistid boundstone; upper half is medium-bedded gastropod and bivalve waskestone; conformable contacts; thickness 6-13 m (20-45 ft)

02-07-06-00-00—Unit—U-Bar Fm Sandstone—U-Bar Formation, Sandstone Member (Lower Cretaceous)—Interbedded (on a scale of 1-5 m [3-17 ft]), brown, ledge-forming, crossbedded, granular to very coarse grained sandstone and granule-pebble conglomerate with bivalve shells and gray, massive to horizontally or hummocky-laminated, bioturbated very fine and fine-grained sandstone with bivalve shells; conformable contacts; thickness from 25 m to 66 m (85-110 ft) thinning southward.

02-07-07-00-00—Unit—U-Bar Fm L-Lime—U-Bar Formation, Lower Limestone Member (Lower Cretaceous)—Gray, thick-bedded, oolitic grainstone with scattered large bivalve and gastropod shells in northern part of range; silty bivalve and gastropod grainstone in southern part of range; conformable contacts; thickness from 13 to 33 m (45-110 ft), thinning southward.

02-07-08-00-00—Unit—H-F Mottled Silt—Hell-to-Finish Formation, Mottled Siltstone Member (Lower Cretaceous)—Tan, gray-mottled calcareous siltstone and very fine grained sandstone with horizontal and hummocky laminations and bioturbation; predominantly ledge forming with covered intervals; six 0.5-m-thick (1.5-ft-thick) beds of siltstone-, limestone-, and chert-pebble conglomerate and one 6-m-thiiv (19.5-ft-thick) bed of crossbedded, granular, coarse-grained sandstone with bivalve and gastropod shells; conformable contacts; thickness from 119 to 168 m (400-550 ft), thinning southward

02-07-09-00-00—Unit—H-F Conglom—Hell-to-Finish Formation, Conglomerate Member (Lower Cretaceous)—Gray, massive, grain-supported cobble and boulder conglomerate with medium-grained sand matrix; clasts are well-rounded chert and limestone derived from underlying middle Permian section; conformable upper contact, unconformable lower contact; thickness from 1 to 40 m (3-133 ft)

02-08-00-00-00—Heading02—Middle Permian—Middle Permian—Period

02-08-01-00-00—Unit—Yeso Formation—Yes-San Andres Formation (Middle Permian)—Gray, cream, olive-gray, and rusty-gray micrite, echinoid grainstone, and dolomitic limestone in medium to massive beds; local bivalves, rugose corals, and chert; silicified or marbelized locally (s); thickness at least several hundred meters (1000 ft)

03-00-00-00-00—Heading01—Volcanic Rocks—Volcanic Rocks—Volcanic Rocks

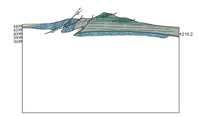
03-01-00-00-00—Heading02—Holoc... & Upper Pleistocene—Pleistocene—Epoch

03-01-0100-00—Unit—Air-Fall Tuff, Breccia—Air-Fall Tuff and Breccia of Portrillo Maar (Pleistocene)—Crossbedded juvenile basaltic lapillo and accretionary lapilli and disaggregated sand and silt from the Camp Rice Formation; angluar to rounded upper mantle xenoliths and lower, middle, and upper crustal xenoliths include lherzolite, granulites, gneisses, conglomerate, limestone, and volcanic rocks; thickness to 7 m (23.5 ft)

03-01-02-00-00—Unit—Alkali-Olivine Basalt—Alkaline-Olivine Basalt (Lower Pleistocene)—Baslat flows (Qb); thickness at least 20 m (65 ft) Locally

03-01-03-00-00—Unit—Alkali-Olivine Basalt—Alkaline-Olivine Basalt (Lower Pleistocene)—Cinder COnes (Qbc); thickness at least 20 m (65 ft) locally

Data Frame Name: Geological Cross Section A-A'



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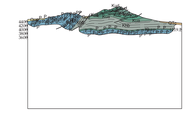

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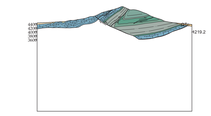

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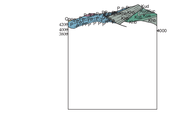

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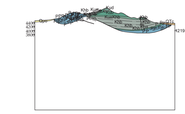

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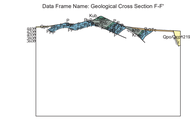

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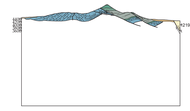

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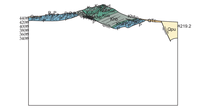

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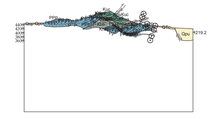

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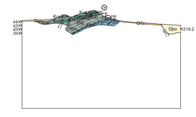

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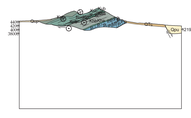

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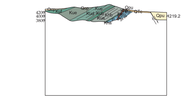

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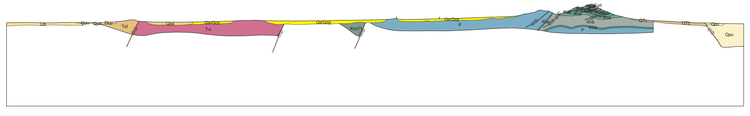

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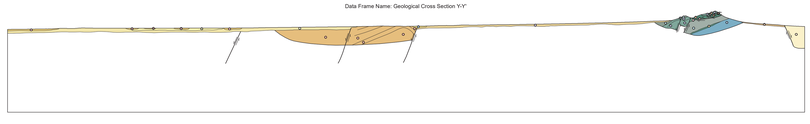

Base Map from U.S. Geological Survey 1994
North American Datum of 1927 (NAD27)
Projection and 1,000-meter grid: Universal Transverse Mercator, Zone 13S, shown in blue
10,000-foot ticks: New Mexico Coordinate System of 1983(central zone), shown in red

Sources:
Topography: U.S. Census Bureau, 2010–2016
Roads: TIGER Line Shapefiles, 2016, 2019
Cartography: pyGMT and Generic Mapping Tools, 2019
Hillshade: pyGMT and Generic Mapping Tools, 2019
Wetlands: FWS National Wetlands Inventory 1977–2014

1:24,000

1 0.5 0 1 Mile

1000 0 1000 2000 3000 4000 5000 6000 7000 Feet

1 0.5 0 1 Kilometer

Contour Interval 100 Feet

National Geodetic Vertical Datum 1929

Quadrangle Location

New Mexico Bureau of Geology and Mineral Resources
New Mexico Tech
801 Leroy Place
Socorro, New Mexico
87801-4796

[575] 835-5490

This and other STATEMAP quadrangles are available for free download in both PDF and ArcGIS formats at:

http://geoinfo.nmt.edu

Digital layout and cartography by the NMBGMR Map Production Group:
Phil L. Miller, Amy L. Dunn, and Katherine J. Sauer

New Mexico Bureau of Geology and Mineral Resources
Bulletin 113

Mapping of this quadrangle was funded by a matching-funds grant from the STATEMAP program of the National Cooperative Geologic Mapping Act (Fund Number [illegible]), administered by the U. S. Geological Survey, and by the New Mexico Bureau of Geology and Mineral Resources, (Dr. Nelia W. Dunbar, *Director and State Geologist*, Dr. J. Michael Timmons, *Assoc. Director for Mapping Programs*).

Bulletin of the Geology of East Potrillo Mountains and vicinity, Dona Ana County, New Mexico

1994

by

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DRAFT

Comments to Map Users

A geologic map displays information on the distribution, nature, orientation, and age relationships of rock and deposits and the occurrence of structural features. Geologic and fault contacts are irregular surfaces that form boundaries between different types or ages of units. Data depicted on this geologic quadrangle map may be based on any of the following: reconnaissance field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation. Locations of contacts are not surveyed, but are plotted by interpretation of the position of a given contact onto a topographic base map; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologist(s). Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. Site-specific conditions should be verified by detailed surface mapping or subsurface exploration. Topographic and cultural changes may not be shown due to recent development.

Cross sections are constructed based upon the interpretations of the author made from geologic mapping, and available geophysical, and subsurface (drillhole) data. Cross sections should be used as an aid to understanding the general geologic framework of the map area, and not be the sole source of information for use in locating or designing wells, buildings, roads, or other man-made structures.

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